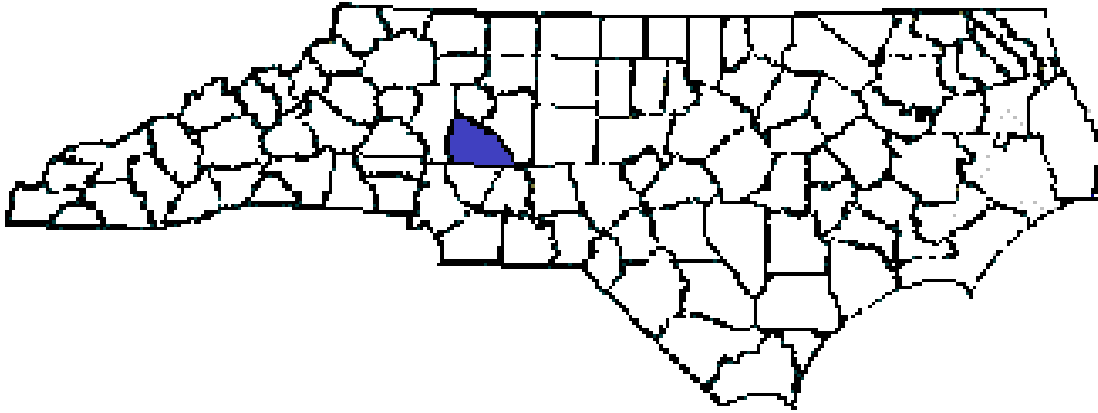


ANNUAL REPORT FOR 2016



**Yadkin River Wetland Mitigation Site
Rowan County
TIP No. I-2304A
COE Action ID: SAW-1998-21203
DWR Project #: 2004-0275 v.5.**



Prepared By:
Natural Environment Section & Roadside Environmental Unit
North Carolina Department of Transportation
July 2016

TABLE OF CONTENTS

SUMMARY	1
1.0 Introduction	2
.1 Project Description	2
.2 Purpose	2
.3 Project History	2
.4 Debit Ledger.....	3
2.0 Vegetation:	5
.1 Success Criteria	5
.2 Description of Species.....	5
.3 Results of Vegetation Monitoring	6
.4 Conclusions.	6
3.0 Overall Conclusions and Recommendations	6

FIGURES

Figure 1 – Vicinity Map	4
-------------------------------	---

APPENDICES

Appendix A – Site Photos and Site Map	
---------------------------------------	--

SUMMARY

The Yadkin River Wetland Mitigation Site is located in Rowan County. The site was planted in January 2014 and was designed as wetland mitigation for impacts associated with TIP project I-2304A.

The mitigation encompasses approximately 2.74 acres total of riverine bottomland hardwood wetland restoration at the Yadkin River Wetland Mitigation Site by removing the existing roadway fill. The mitigation effort involved ripping and re-vegetating the area that is being restored. The area that was restored is being monitored with vegetation plots and photo points for survival of planted seedlings. No hydrologic monitoring is required for this project; however, vegetation monitoring is required for five years.

There were two vegetation monitoring plots established throughout the 2.74 acre site. After the second year of monitoring, the 2016 vegetation monitoring of the site revealed an average tree density of 630 trees per acre.

NCDOT proposes to continue vegetation monitoring at the Yadkin River Wetland Mitigation Site in 2017.

1.0 INTRODUCTION

1.1 Project Description

The Yadkin River Wetland Mitigation Site is located adjacent to the I-85 overpass of the Yadkin River in Rowan County. The site consists of approximately 2.74 acres of riverine wetland mitigation for wetland impacts associated with TIP project I-2304A.

1.2 Purpose

In order for a mitigation site to be considered successful, the site must meet vegetation success criteria. This report details the vegetation monitoring in 2016 at the Yadkin River Wetland Mitigation Site. Hydrologic monitoring was not required for the site.

1.3 Project History

January 2014	Site Planted
July 2015	Vegetation Monitoring (Year 1)
June 2016	Vegetation Monitoring (Year 2)

1.4 Debit Ledger

Site name	Site TIP	HUC	River Basin	Division	County	Mitigation Type	Notes	As Built Quantity	Available	Debit	Debit	Debit
Yadkin River Bridge	I-2304A	3040103	Yadkin	9	Davidson/Rowan	Riparian				I-2304A Site 2 Second Mod	I-2304A Site 3-12	I-2304A Site 2 & First Mod
								2.74	0	0.16	1.07	1.51

Note: Debit ledger information up to date as of September 7, 2016. The on-site mitigation for I-2304A offset impacts of 2.74 acres at a 1:1 ratio.

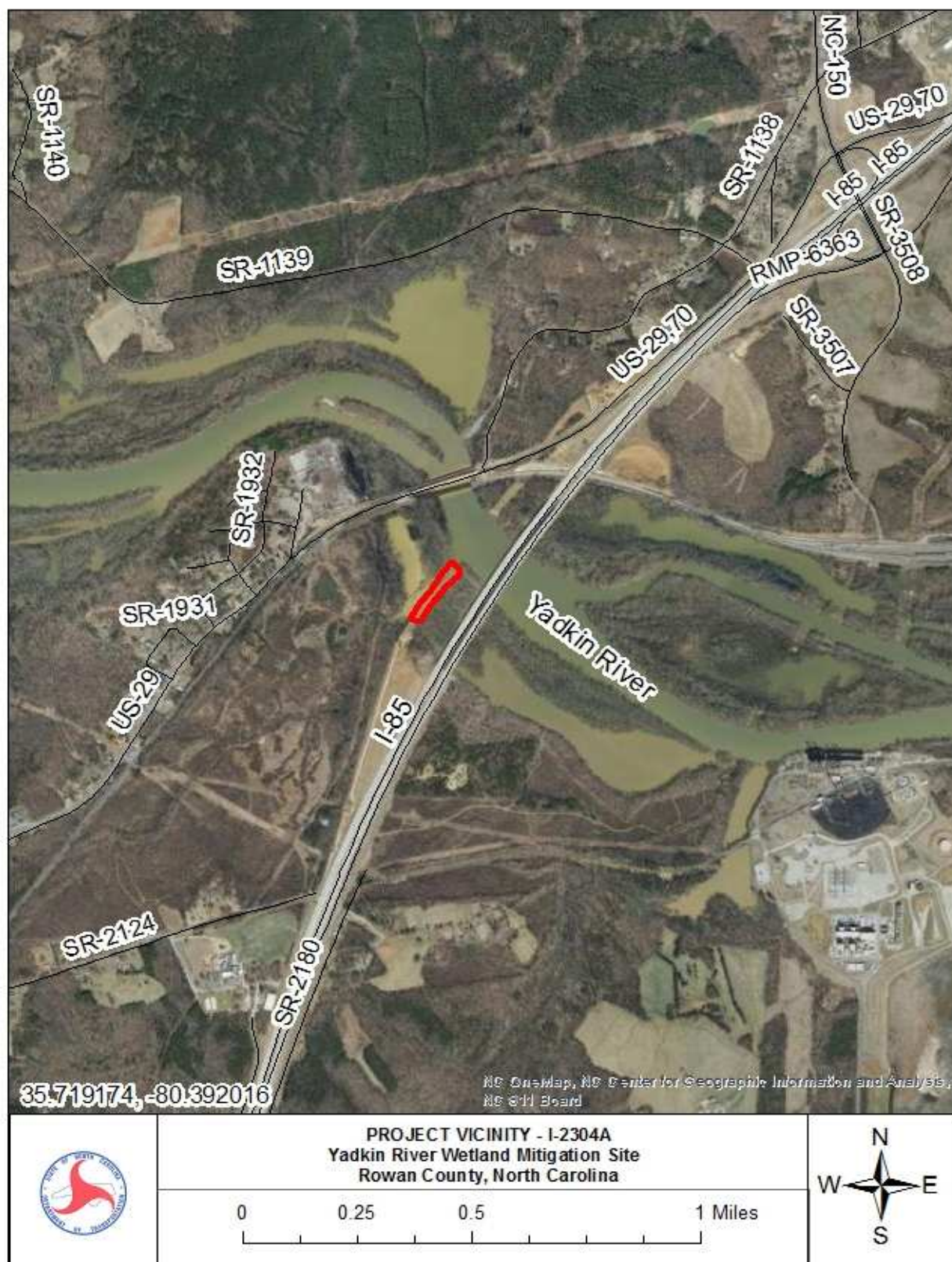


Figure 1. Vicinity Map

2.0 VEGETATION: YADKIN RIVER WETLAND MITIGATION SITE (YEAR 2 MONITORING)

2.1 Success Criteria

Mitigation Plan States:

NCDOT shall monitor the restoration site utilizing two (2) fifty feet by fifty feet (50' x 50') monitoring plots that will be established upon completion of the site grading and planting.

NCDOT shall monitor the site for a minimum of five years or until the site is deemed successful. A 320 stems per acre survival criterion for planted seedlings will be used to determine success for the first three years. The required survival criterion will decrease by 10% each year after the third year of vegetation monitoring (i.e. for an expected 290 stems per acre for year 4 and 260 stems per acre for year 5).

No specific hydrological monitoring is proposed for this mitigation site. The target elevation will be based on the adjacent wetland elevation and verified during construction. Constructing the site at the adjacent wetland elevation will ensure the hydrology and connectivity of the restored areas are similar to the hydrology in the reference areas.

2.2 Description of Species

The following tree species were planted in the Wetland Restoration area:

Platanus occidentalis, Sycamore

Betula nigra, River Birch

Fraxinus pennsylvanica, Green Ash

Ulmus americana, American Elm

Nyssa sylvatica, Black Gum

Quercus michauxii, Swamp Chestnut Oak

2.3 Results of Vegetation Monitoring

Plot #	Sycamore	River Birch	Green Ash	American Elm	Black Gum	Swamp Chestnut Oak	Total (Year 2)	Total (at planting)	Density (Trees/Acre)
1	13		15			10	38	40	646
2	14	12	11				37	41	614
Year 2 Average Density (Trees/Acre)									630
Year 1 Average Density									680

Site Notes: Other species noted onsite included volunteer river birch, sycamore, cottonwood, lespedeza, sweetgum, red maple, woolgrass, *Scirpus* sp., fennel, stinkweed, tulip poplar, buttonbush, mimosa, *Juncus* sp., black willow, smartweed, and various grasses.

2.4 Conclusions

There were 2 vegetation monitoring plots established throughout the 2.74 acre site. The 2016 vegetation monitoring of the site revealed an average density of 630 trees per acre for the second year of monitoring.

3.0 OVERALL CONCLUSIONS AND RECOMMENDATIONS

The 2016 year represents the second year of monitoring activities that have occurred at the Yadkin River Wetland Mitigation Site. The site must demonstrate vegetation success for a minimum of five years or until the site is deemed successful.

There were two vegetation monitoring plots established throughout the 2.74 acre site. The 2016 vegetation monitoring of the site revealed an average density of 630 trees per acre.

NCDOT will continue vegetation monitoring at the Yadkin River Wetland Mitigation Site in 2017.

APPENDIX A

SITE PHOTOS and SITE MAP

Yadkin River Wetland Mitigation Site



Photo 1



Photo 2



Photo 3

June 2016


Yadkin River Wetland Mitigation Site

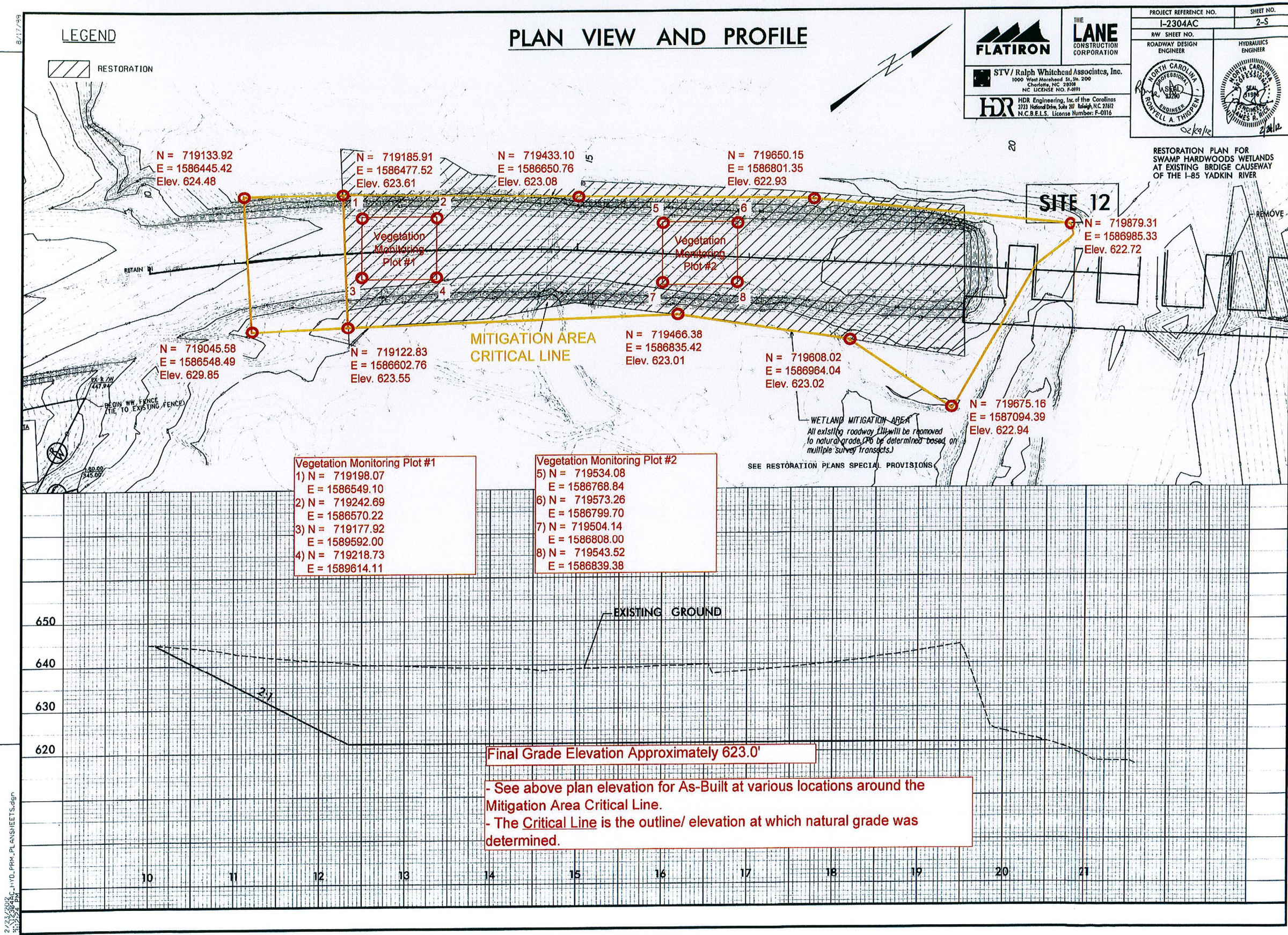


Overview Photo

June 2016



	<p>Site Map: Photo Point and Vegetation Plot Locations I-2304A Yadkin River Wetland Mitigation Site Rowan County, North Carolina</p> <p>0 105 210 420 Feet</p>	<p>N W E S</p>
---	--	-----------------------------



LEGEND

RESTORATION

PLAN VIEW AND PROFILE



THE LANE
CONSTRUCTION
CORPORATION

STV / Ralph Whithead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28206
NC LICENSE NO. F-5991
HDR Engineering, Inc. of the Carolinas
2113 Noland Drive, Suite 200, Raleigh, NC 27602
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. I-2304AC	SHEET NO. 2-S
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

RESTORATION PLAN FOR
SWAMP HARDWOODS WETLANDS
AT EXISTING BRIDGE CAUSEWAY
OF THE I-85 YADKIN RIVER

SITE 12

Vegetation Monitoring Plot #1
1) N = 719198.07
E = 1586549.10
2) N = 719242.69
E = 1586570.22
3) N = 719177.92
E = 1589592.00
4) N = 719218.73
E = 1589614.11

Vegetation Monitoring Plot #2
5) N = 719534.08
E = 1586768.84
6) N = 719573.26
E = 1586799.70
7) N = 719504.14
E = 1586808.00
8) N = 719543.52
E = 1586839.38

Final Grade Elevation Approximately 623.0'

- See above plan elevation for As-Built at various locations around the Mitigation Area Critical Line.
- The Critical Line is the outline/ elevation at which natural grade was determined.

REVISIONS

2/23/2022
AC-11VD-PRM-PLANSHEETS.dgn